JOURNAL of the ADELAIDE BOTANIC GARDENS

AN OPEN ACCESS JOURNAL FOR AUSTRALIAN SYSTEMATIC BOTANY

flora.sa.gov.au/jabg

Published by the
STATE HERBARIUM OF SOUTH AUSTRALIA
on behalf of the
BOARD OF THE BOTANIC GARDENS AND STATE HERBARIUM

State Herbarium of South Australia
PO Box 2732
Kent Town SA 5071
Australia

Government of South Australia
Department of Environment, Water and Natural Resources

Board of the Botanic Gardens and State Herbarium

J. Adelaide Bot. Gard. 7(2): 207-215 (1985)

PLANT PORTRAITS

The printing of the following four illustrations in colour was made possible by special funding from The Friends of the Botanic Gardens of Adelaide Inc.

13. **Cheiranthera volubilis** Benth. (Pittosporaceae)

Cheiranthera volubilis Benth., Fl. Aust. (1863) 128 ; J. Black, Fl. S.Aust. edn 2 (1948) 394.

Illustration: Based on fresh material preserved under *R. Davies & W. Bushman 145*, from near junction of Church Road and West-End Highway, north from gate into Flinders Chase National Park, Kangaroo Island, 8.x.1983 (AD).

A glabrous twiner 20 cm to 1 m tall. *Stem* weak, slender, terete, branching chiefly at the base, usually purplish-brown, glabrous, papillose with flaky epidermis. *Leaves* erect, alternate, sometimes clustered at the node, sessile, linear, mucronate, strongly involute so as to appear almost terete, channelled on the upper surface and somewhat papillose, glabrous and with sparsely ciliate margins, 2-22 (-30) mm long, 0.5-1 mm broad. *Flowers* solitary, terminal, drooping from a lone slender peduncle; peduncle purplish, 1-5 cm long. *Sepals* 5, free, lanceolate, acute, greenish-blue with scarious margins, glabrous, glandular-viscid outside, 4-6.5 mm long, 1-1.5 mm broad. *Petals* 5, free, obovate, glabrous, deeply violet-blue, 14-15 mm long, ± 7 mm broad. *Stamens* 5, all curved towards one side of the flower; anthers conspicuously sulphur-yellow, longer than the filaments, narrowly oblong-ovoid, obtuse, ± 4.5 mm long, about 1 mm broad, opening by two apical pores; filaments violet-blue, flat, curved, glabrous, 3-3.5 mm long. *Ovary* superior, cylindrical, abruptly constricted at both ends, glabrous, 3-3.5 mm long, 1-1.5 mm in diameter; style subulate, glabrous, violet-blue, ± 4 mm long, stigma entire. *Fruit* not seen.

C. volubilis is endemic to Kangaroo Island, South Australia, where it is reported chiefly from the western and southern parts of the island. A detailed description of this species is provided here for the first time. The descriptions provided by Bentham (1863) and J.M. Black (1948) lack details. The publications of Bennett (1972, 1978) are the most recent references dealing with the genus *Cheiranthera*, but she describes mainly new taxa and did not mention *C. volubilis*.

This species is very similar to *C. parviflora* Benth. in its solitary flowers being borne on slender terminal peduncles. Nevertheless, *C. parviflora* can easily be distinguished by its leaves being much broader, flat and with slightly revolute or recurved margins and its comparatively smaller flowers. Moreover, *C. parviflora* is endemic to Western Australia while *C. volubilis* occurs only on Kangaroo Island in South Australia. *C. volubilis* is also closely related to *C. alternifolia* E. Bennett, but the latter can readily be identified by its twiggy branches and corymbose inflorescence.

According to field notes accompanying the specimens *R. Davies & W. Bushman 144, 155* (AD), this species occurs chiefly in sandy, silty or clayey soil with laterite. It has been collected from a 'gentle south-facing slope near crest of broad ridge of dissected plateau'. The species was found to regenerate in areas bulldozed or destroyed by fire. *C. volubilis* is found in association with low open shrubland of *Xanthorrhoea tateana* F. Muell. and *Caustis pentandra* R. Br. G. Jackson (*608 & 416* in AD) collected it from 'ironstone rubble under pine plantation'.

References

Bennett, E.M. (1972). New taxa and new combinations in Western Australian Pittosporaceae. *Nuytsia* 1(3): 266-269.
Bennett, E.M. (1978). New taxa and new combinations in Australian Pittosporaceae. *Nuytsia* 2(4): 184-199.
Bentham, G. (1863). Pittosporaceae. 'Flora Australiensis'. Vol 1: 109-128. (L. Reeve & Co.: London).
Black, J.M. (1948). Pittosporaceae. 'Flora of South Australia'. edn 2. Part 2: 393-395. (Govt Printer: Adelaide)

A.A. Munir
State Herbarium of South Australia
Adelaide 5000

Del. J. Morley
Gumeracha, South Australia 5233

14. **Acacia glandulicarpa** R. M. Reader (Leguminosae- Mimosoideae)

Acacia glandulicarpa F.M. Reader, Vic. Nat. 13: 146 (1897); Whibley, Acacias of South Australia (1980) 136.

Illustration: Based on fresh material preserved under *R. Davies & W. Bushman 517*, from Burra Creek Gorge, southern side c. 1 km west of end of road into gorge, c. 22 km from Robertstown, 29. vii. 1983 (AD).

Shrubs rounded, spreading, usually much branched, 1-2 m high, with dull olive-green foliage; branchlets grey-brown, terete, pubescent, marked with small raised phyllode bases. *Phyllodes* small, obliquely oblong-obovate to more or less elliptical, 5-12 mm long, 3-6 mm broad, erect, thick, rigid, glabrous, minutely glandular, 2-nerved with usually central nerve more prominent, lateral nerves somewhat anastomosing and few obscure, apex shortly mucronate. *Stipules* small, thick, almost deltoid, persistant. *Inflorescences* simple and axillary, solitary or twin, flower heads bright yellow, small 8-20 flowered; peduncles about as long as phyllodes. *Calyx* 5-lobed, lobes about as long as the tube, ciliate, somewhat clothed with whitish shining hairs. *Petals* glabrous, oblong-ovate, slightly oblique, rather acute, with a broad prominent nerve. *Legumes* narrowly oblong, 1.5-3 cm long, 2-3 mm broad, straight or curved, viscid and covered with glandular shining hairs. *Seeds* depressed oblique in legume obovoid ellipsoid, funicle short folded under seed and thickening gradually into an elongated aril. Flowering time: July-October.

Acacia glandulicarpa has a disjunct distribution. The main occurrence is as scattered populations in the West-Wimmera, Victoria with the largest populations in the Gerang-Gerung- Kiata area (Stowe J. (1982) *Vic. Nat.* 99: 52-65).

In South Australia a small population of *A. glandulicarpa* occurs in the Northern Lofty Region on north-west facing slopes on skeletal soil with slate and shale. *A. glandulicarpa* was first recorded in September 1966 from this area by C.D. Boomsma (AD 96637002). Recently R. Davies and W. Bushman searched the area and observed 18 plants with no seedlings apparent.

The vegetation is low shrubland associated with *Eucalyptus socialis* F. Muell. ex Miq., *E. brachycalyx* Blakely and *Callitris preissii* Miq. Other acacias observed in the near and surrounding area are *Acacia brachybotrya* Benth., *A. oswaldii* F Muell., *A. calamifolia* Sweet ex Lindley, *A. ligulata* Cunn. ex Benth., *A. pycnantha* Benth.

Acacia glandulicarpa is similar in habit and related to *A. rotundifolia* Hock. but the latter differs in having one main nerve on the phyllode and a spirally coiled more or less glabrous legume.

About one-third of the population in Victoria is either in National Parks reserves, the John Smith Memorial Sanctuary or Crown Land. In South Australia the small population showed signs of sheep grazing in the area so it has been considered vulnerable as defined by Leigh, Briggs and Hartley (1981).

D.J.E.Whibley
State Herbarium of South Australia
Adelaide 5000

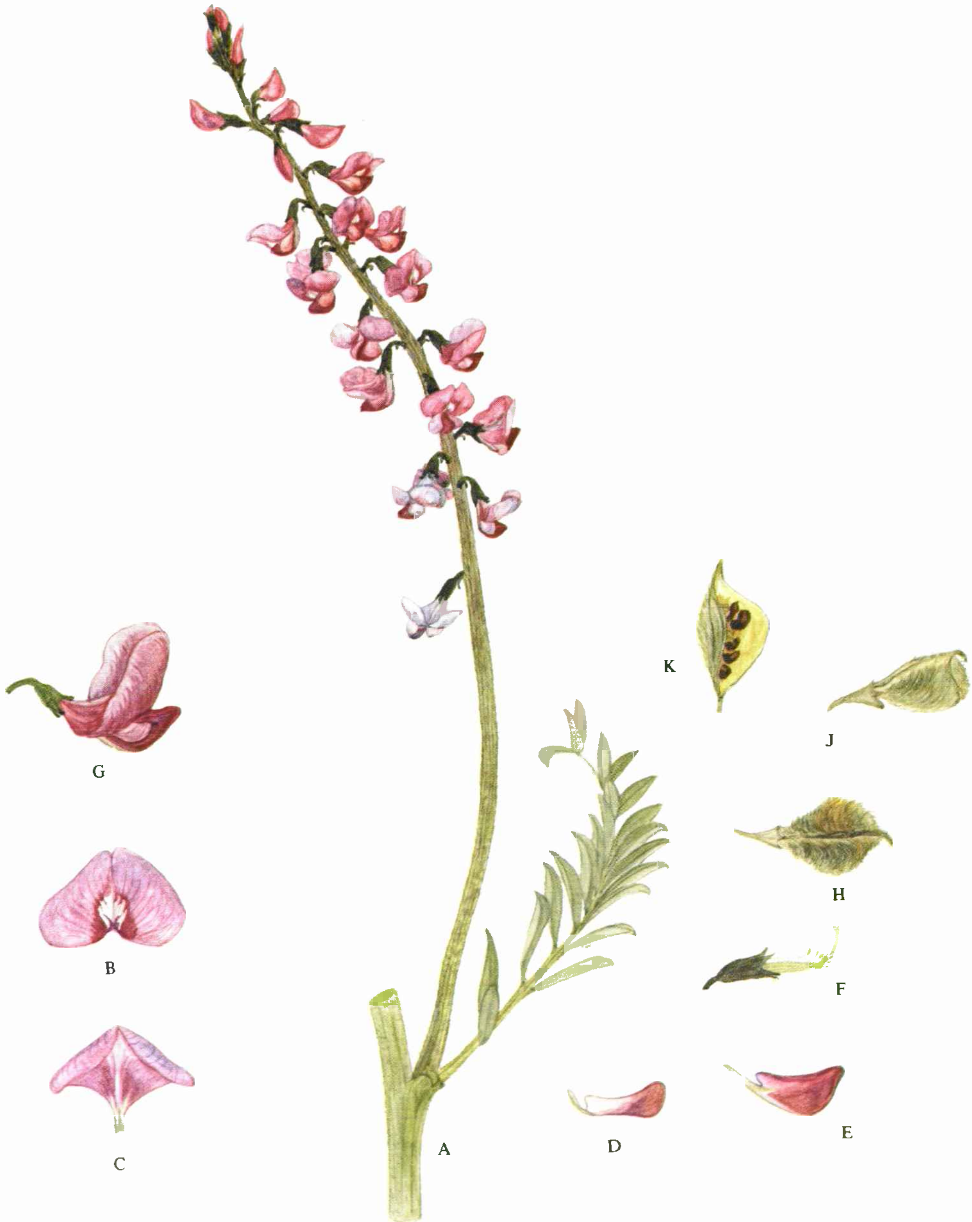
Del. J. Morley
Gumeracha, South Australia 5233



Cheiranthera volubilis Benth, A, several branches each ending in a flower, x 0.7; B, insertions of leaves on branch, x 1; C, flower bud and developing fruit, x 0.7; D, transverse section through leaf, x 4; E, flower in close up, x 3; F, flower with sepals and petals removed in side view, x 3.



Acacia glandulicarpa Reader. A, habit, x 0.7; B, phyllode in back view, x 2; C, phyllode in front view, x 2; D, flower, x 10; E, legume, x 0.7; F, portion of legume, x 2; G, portion of legume opened to show seeds on funicle, x 2; H, glandular hair from legume, x 6.



Swainsona tephrotricha F. Muell. A, habit, x 0.7; B, standard in front view, x 1; C, standard in back view, x 1; D, wing from the inside, x 1; E, keel in side view, x 1; F, flower with petals removed, x 1; G, flower in side view, x 1; H, legume from above, x 1; J, legume in side view, x 1; K, opened legume, x 1.

J. Adelaide Bot. Gard. 7(2) (1985)



Pseudanthus micranthus Benth. A, habit, x 1; B, branchlet with flower buds, x 3; C, mature stem with two female flowers and one male, x 3; D, female flower, x 6; E, developing fruit, x 3; F, aborted fruit from previous year, x 3; G, male flower on mature stem, x 5; H, male flower in side view, x 10; G, male flower in surface view, x 10.

15. **Swainsona tephrotricha** F. Muell. (Leguminosae-Papilionoideae)

Swainsona tephrotricha F. Muell., Linnaea 25 (1853) 392.

Illustration: A-G Based on fresh flowering material preserved under *R. Davies & W. Bushman 518*, 29.vii.1983, 2.5 km WSW Eudunda along main road to Kapunda (AD); H-K from: *R.H. Kuchel 3113*, 14.ix.1973, Arkaroola, Flinders Ranges (AD).

Ascending or suberect perennial, with pithy stems, usually 10-30, sometimes 100 cm high; indumentum of dense silvery or grey medifixed, flattened hairs, appressed, sometimes with the ends spreading on stems, leaves and peduncles. *Leaves* 3-10, commonly c. 5 cm long, with (9-) 13-17 (-19) leaflets; leaflets oblanceolate to elliptic, 7-30 x 2-15 mm, broadly acute, with recurved mucro, pubescent evenly on both sides; stipules lanceolate, 5-8 mm long, pubescent. *Flowers* few to 30 on the distal half of the peduncle 8-30 cm long, flowers 8-10 mm long, pedicels c. 2 mm long, densely pubescent with dark and/or white hairs; bract ovate-lanceolate, slightly longer or shorter than hoary pedicel; bracteoles subulate, to 0.5 mm long, inconspicuous. *Calyx* 4-6 mm long, densely covered with grey and/or dark hairs giving it a dark appearance; teeth triangular, c. 1 mm long. *Petals* brilliantly rose-pink, drying purplish; standard broadly obcordiform, about as long as broad, with oblique venation, without calli, with a wide short claw c. 2 mm long; wings shortest, oblong on a slender claw c. 3 mm long; keel shorter than the standard, semicircular, obtuse, often with a pair of folds near the auricle, with slender claw c. 3 mm long. *Ovary* shortly stipitate, fusiform, appressed-pubescent with short hairs except for longer and spreading ones along the suture; style slender, bearded along whole length, with tip slightly but never abruptly bent, a minute tuft of obscure hairs behind the stigma. *Pod* subglobose, c. 10 mm long, slightly impressed along suture, distinctly beaked, densely pubescent with white hairs, 10-20-seeded. *Seeds* reniform, up to 2 mm long, brown.

Swainsona tephrotricha is usually found on higher ground and slopes in brown earth with limestone and/or shale in a variety of plant associations ranging from open semi-arid tussock grasslands to open shrublands and disturbed roadside vegetation invaded by exotics.

The most northern part of the distribution of the species is confined to a region around Arkaroola in the Gammon Range of the northern Flinders Ranges and there are several records known of it. Only one or two have been collected to the south at Wilkawillina Gorge and Pekina; a single collection from Terowie in the Northern Lofty Region is preserved in the Adelaide Herbarium. From the Murray Region only one collection from Panaramitee Dam, south of Yunta and Eudunda is known.

The collection *R. Davies & W. Bushman 518* from just south of Eudunda has notes on the ecology of the plants. They found 57 healthy plants with new growth on a gentle west-facing slope together with *Stipa* sp.. *Avena* sp., *Maireana brevifolia* (R. Br.) P.G. Wilson, *Salsola kali* L., *Marrubium vulgare* L., *Echium plantagineum* L., *Lomandra effusa* (Lindley) Ewart and *Vittadinia blackii* N. Burb.

Here the survival of the plants could be threatened due to indiscriminate collecting because these are readily accessible populations of such showy flowers. Although the species seems to occur over such a large area between Eudunda and Arkaroola it is found only in a few scattered localities where it might be locally abundant. The plants are threatened with extinction throughout its distribution range due to heavy grazing by sheep and especially goats.

Swainsona tephrotricha was described by F. Mueller from Burra and the rivers Broughton, Hut and Hill. Subsequently Bentham (1864) reduced it to varietal level as *S. lessertiifolia* DC. var. *tephrotricha*. A.T. Lee (1948) reinstated it to species level in her revision of the genus and chose Mueller's specimen from Burra as the lectotype relying on observations published by Black (1927).

References

Bentham, G. (1864). 'Flora Australiensis'. (Reeve: London).
Black, J.M. (1927). Additions to the flora of South Australia No. 25. *Trans. Roy. Soc. S. Aust.* 51: 381.
Lee, A.T. (1948). The genus *Swainsona. Contr. N.S.W. Natn. Herb.* 1, 4: 188-9.

J.Z. Weber
State Herbarium of South Australia
Adelaide 5000

Del. J. Morley
Gumeracha
South Australia 5233

16. **Pseudanthus micranthus** Benth. (Euphorbiaceae)

Pseudanthus micranthus Benth., Fl. Aust. 6: 59 (1873).

Illustration: Based on fresh flowering material preserved under *R. Davies & W. Bushman 553*, 18.vii.1983, below Toc. H. camp, Victor Harbor (AD).

Dwarf shrublet, rigid when with intricate branching, otherwise slender, 10-20 cm high, with some branchlets extended to 30 cm long, minutely pubescent with short, stiff, thick, greyish or often reddish hairs; woody branches arising from a tap root. *Leaves* alternate, rarely opposite, on distinct glabrous petiole to 0.5 mm long, evenly and widely spaced on greyish or reddish branchlets; lamina obovate or oblanceolate, 2-6 mm long, 1-2.5 mm wide, acute, glabrous and glaucous above, minutely papillose beneath, the midrib visible on the lower face often ending in a small mucro; stipules filiform, c. 0.5 mm long, brown, often caducous. *Flowers* unisexual on monoecious plants. *Male flowers* 1-3 in axil of leaves on terminal leafy shoots, turbinate, 1-1.5 mm long, attenuate into a pedicel to 1/3 of its length. *Tepals* 6, subequal, ovate, to 1 mm long, yellow with reddish tinge dorsally, imbricate in bud, rotate. *Stamens* 3, nearly as long as the perianth, with filaments free at the base, alternating with lobes of a minute rudimentary ovary, joined near the apex (probably by interlocking papillae) where the anthers form a crown; anther cells semiglobular, c. 1 mm across, usually red, dehiscing longitudinally, deciduous after anthesis. *Female flowers* solitary, sessile, scattered among male flowers. *Tepals* 5, 3 outer ones lanceolate-costate, 1.5-2 mm long, yellow usually tinged red distally, the inner segments ovate and shorter than outer ones, yellow-hyaline. *Ovary* if 2-locular then laterally compressed, if 3-locular then 3-lobed, each locule with 2 ovules and tapering into a recurved style to 0.5 mm long, undivided, dorsally papillose, rarely capitate. *Capsule* obliquely ovoid, 4-5 x c. 3 mm, with three ridges dorsally, 1-locular and 1-seeded by abortion, light greenish-yellow turning brown, faintly reticulate. *Seeds* subglobular to ovoid, 2.5-3.5 x 2.5-3 mm, brown, smooth, shiny, slightly apiculate, without any fleshy terminal outgrowth (caruncle).

The species is rather restricted in the Southern Lofty Region from Port Elliot, Victor Harbor and Waitpinga through the Inman Valley, Willow Creek to Mount Compass, Yankalilla and Normanville. Flowers are apparently found throughout the year.

The unusual locality of the following specimen raises doubts as to its correctness as all other specimens of this species are from the restricted distribution on the southern Fleurieu Peninsula. Professor R. Tate sent material, according to the label, to F. Mueller in Melbourne who based on it the new species *Phyllanthus tatei.* Unfortunately the original note from Tate was not preserved and the specimen is labelled as being collected from the Bundaleer Range in the Northern Lofty Region. Later J. Black seemed to have examined this specimen and/or was given part of this collection for his own herbarium and copied in his own hand Mueller's locality onto the label. Black (1924) made the new combination *Micranthus tatei* (F. Muell.) J. Black but reversed his decision again in 1948. Eichler (1965) then placed the species into the synonymy of *Pseudanthus micranthus* where it is still maintained.

These rigid plants are apparently not grazed by sheep or cattle. They are found on hill sides, roadsides and sandy places where the long tap root penetrates the soil. When the plants are growing between shrubs or bushes and sheltered between them, the habit of the plant is more slender and branches are more straight and erect.

References

Black, J.M. (1924). 'Flora of South Australia' 356. (Govt Printer: Adelaide).
Black, J.M. (1948). 'Flora of South Australia, 2 edn, 511. (Govt Printer: Adelaide).
Eichler, H. (1965). 'Supplement to J.M. Black's Flora of South Australia' 210. (Govt Printer: Adelaide).
Mueller, F.J.H. (1882). Definitions of some new Australian plants. *Southern Species Record* (March 1882) 55.

J.Z. Weber
State Herbarium of South Australia
Adelaide 5000

Del. J. Morley
Gumeracha
South Australia 5233